

# PRIORITIES FOR VULNERABILITY, IMPACTS AND ADAPTATION RESEARCH

Programme on **Vulnerability, Impacts, and Adaptation**  
[www.provia-climatechange.org](http://www.provia-climatechange.org)  
**WMO and UNEP**

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SBSTA 36 Research Dialogue

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# What is PROVIA?

- PROVIA is a global initiative which aims to provide direction and coherence at the international level for research on vulnerability, impacts and adaptation (VIA)
- Parent organizations are UN 'Joint Programme' of UNEP with WMO and UNESCO; Secretariat at UNEP; counterpart to WCRP
- PROVIA responds to the urgent call by the scientific community for a more cohesive and coordinated approach, and the critical need to harmonize, mobilize, and communicate the growing knowledge-base on VIA

# PROVIA Activities

1. Develop a prioritised international agenda for research on VIA, and communicate to governments and international agencies
2. Provide VIA information to the UNFCCC and similar bodies, especially information that will enable more effective adaptation
3. A biennial conference to improve the coherence of VIA research
4. Improve the robustness of VIA assessments, by revising guidance on research methods

# Activity 1 (2011 – 2012)

## International Agenda for VIA Research

- **Experts Identify VIA Research Priorities**
  - Gap analysis based on VIA literature review
  - Electronic consultation of the expert community, based on Scientific Steering Committee (SSC) feedback,
  - ~150 experts from around the world participated
- **Policymakers Identify VIA Research Priorities**
  - International Policymaker meetings with straw polls held in Washington D.C., London and Bonn (SBSTA 36)
- **Integration of Policymaker and Expert Pathways**
  - PROVIA Draft Priority Research Framework and Topics

# Draft Research Priorities Framework

## Section A. Information Needed to Support a Broad Range of Policymaker Activities

A.1 Identifying the Problem

A.2 Advancing Vulnerability Reduction and Adaptation Solutions

A.3 Providing Improved Cost-Benefit Estimates

A.4 Enhancing Communication and Stakeholder / Public Participation

# Draft Research Priorities Framework

## Section B. Specific Topics for Sectoral and Regional Analysis

B.1 Natural Resources

B.2 Human Well-being and Services

B.3 Critical Geographical Areas

## Section C. Emerging Topics

*A total of 33 priority topics*

## Instructions for Survey Handout

- Circle 'H', 'M', or 'L' to indicate High, Medium, or Low priority research topics.
  - Based on overall salience for policy-makers and decision-makers tasked with short and long-term climate change-related mandates
- Feel free to leave some topics blank. Space is provided for additional topics and comments.
- Give completed surveys to Cynthia Rosenzweig or SBSTA Research Dialogue staff.
- PROVIA products will be presented and discussed at Adaptation Futures Conference and other key fora around the world.

***This survey is voluntary and anonymous. We seek your personal opinions. Your collective contributions will be used to refine the PROVIA Research Agenda and to prioritize the topics***





# PROVIA Objectives

1. Prioritise research and communicate priorities to governments and international agencies, and thus help make VIA research funding more effective and decision-relevant
2. Coordinate research on climate impacts, vulnerability, and adaptation
3. Deliver high-quality information on VIA topics being requested by policy-makers, and react to policy requests with due urgency and specificity
4. Build research capacity, especially in developing countries

# PROVIA Research Agenda Process

**E** *Background Report for Foresight Panel Meeting (April-June, 2011)*

**E** *Foresight Panel Meeting (June, 2011)*

**E** *Revised Draft Research Agenda and Draft Priority Research Topics Documents. (August-October, 2011)*

**P** *Policymaker and Practitioner Meetings in Washington, D.C., London, and Durban (October-December, 2011)*

**E** *Electronic consultation of expert community. (Fall 2011)*

**E + P** *Integration of Expert and Policymaker Pathways for Presentation and Discussion at Planet Under Pressure (March, 2012)*

**E + P** *Report released at Adaptation Futures Conference in Arizona, (May, 2012)*

*Outreach.* The report will be presented to decision-makers at key for around the world.

# A. Information Needed to Support a Broad Range of Policymaker Activities

## A.1 Identifying the Problem

Formulate effective monitoring systems and indicators, from impacts and cost standpoints, for tracking gradual changes and the crossing of thresholds related to the climate, ecological, and socio-economic systems.

Develop a robust framework to define, measure, and map vulnerability and the most vulnerable groups (based on gender, age, poverty, and other factors), sectors, and places in order to determine where adaptation is most needed.

Improve understanding of risks and uncertainties related to extreme events (including low-probability, high-impact events), non-linear impacts, and tipping points.

## A.2 Advancing Vulnerability Reduction and Adaptation Solutions

Identify economic, financial, political, legal, institutional, psychological, and cultural factors that support, or act as barriers to, vulnerability reduction and adaptation.

Develop and prioritize specific vulnerability reduction and adaptation solutions to be initiated now in support of adaptive actions over the short and long term.

Research mechanisms for integrating vulnerability reduction and adaptation into existing planning frameworks and budget cycles.

# A. Information Needed to Support a Broad Range of Policymaker Activities (cont.)

## A.3 Providing Improved Cost-Benefit Estimates

7. Research integrated approaches to climate change responses that maximize adaptation, mitigation, and sustainable development benefits while minimizing costs.
8. Develop effective and innovative approaches to measure the monetary and non-monetary costs and benefits of short- and long-term adaptations, and to compare these costs and benefits across sectors, regions, and timeframes.
9. Improve methods to derive robust estimates of the value of ecosystem services.

## A.4 Enhancing Communication and Stakeholder / Public Participation

10. Analyze how to build capacity of local communities and institutions (including government, educational and research organizations, media outlets, the private sector and other practitioners) to communicate about climate change.
11. Determine how communication between the VIA science and the policy and practice communities can be more effective.
12. Advance the sharing and improved understanding of lessons learned from developing country experiences as well as local and traditional knowledge in support of adaptation and strategic action (e.g., determining efficient routes for channeling adaptation funding to the most vulnerable).

## B. Specific Topics for Sectoral and Regional Analysis

### B.1 Natural Resources

Understand how food systems, including production, processing, distribution, and access may be impacted by climate change and extreme events.

Build greater knowledge about water use/demand, water availability and quality, and water law and governance/allocation under changing climate conditions.

Study how ecosystems and existing management approaches will be affected by interactions between climate change effects and other ecosystem stressors including air pollution, overfishing, wildfire, loss of biodiversity, invasive species, and disturbance regimes.

### B.2 Human Well-being and Services

Investigate how climate change modifies human security and the risk of conflict through changes in: resource scarcity, likelihood of migration, state capacity, and frequency and intensity of natural disasters.

Conduct research to identify the factors that amplify and dampen climate impacts (e.g., collective action, governance, price shocks, population movements, and conflict).

Determine how climate change will influence energy production, distribution, demand and consumption, including renewables like hydropower, wind, solar, and bio-energy.

## B. Specific Topics for Sectoral and Regional Analysis (cont.)

### B.3 Critical Geographical Areas

19. Increase understanding of natural processes and VIA in the most vulnerable coastal areas, which include mega deltas, coastal wetlands, islands, coral reefs, and coastal cities.
20. Investigate how urban planning, design, and governance can optimize adaptation, mitigation, and sustainable development potential.
21. Focus studies on issues facing small islands, including the impacts of sea level rise on groundwater and fisheries, potential for increased frequency and intensity of storms, potential for water scarcity and flooding, options for migration, and vulnerability to invasive species.
22. Explore key open ocean topics in need of further research including ocean acidification, the carbon cycle of the ocean, changes in the base of the marine food chain, and the potential for regional deoxygenation.
23. Advance understanding of VIA issues facing mountain regions and the cryosphere (e.g., glacier retreat, changes in streamflow and runoff, the loss of unique ecosystems, the loss of livelihoods, and the emergence of new regional development opportunities).

## C. Emerging Topics

Improve understanding of the challenges of implementing adaptation (e.g., coordinating activities across agencies and other entities, promoting self-protective behavior, limiting corruption, and encouraging technological innovation and diffusion).

Explore the potential for, and VIA implications of, transformative change and transformative learning in social-ecological systems.

Investigate the impacts of geoengineering on VIA.

Improve understanding of legal challenges related to climate change and the role of law, legal tools, and legal principles in promoting or preventing adaptation.

Apply a systems approach to the food-water-energy-security nexus (and other systems) that for example considers cross-sectoral and transboundary impacts and adaptation tradeoffs (e.g., potential conflicts between water use in agriculture and for energy generation).

## C. Emerging Topics (cont.)

Explore the range of different shared socio-economic pathways (SSPs) associated with each Representative Concentration Pathway (RCP), i.e., each scenario set containing emissions, concentration, and land-use trajectories; search participatory processes that enable stakeholders to explore mitigation and adaptation decisions, including the use of global and regional scenarios.


Conduct integrated impact model intercomparisons to improve system understanding, characterize uncertainty, and test adaptation strategies.

Advance decision theory research, including who makes decisions and how they are made in different institutional, political, legal, historical, and cultural contexts.

Characterize the relationship between, risk perception, climate knowledge, and behavior.

Investigate how effective different types of governance, collaborative frameworks, and networks are at supporting partnerships and multi-stakeholder approaches in support of VIA.





# PROVIA Activity 4: Revision of Guidance for Assessing Climate Change Vulnerability, Impacts and Adaptation

- The guidance should promote a more systematic and rigorous approach to assessing VIA
- It should be coherent and based on the latest academic insights in VIA research
- It should take into account the needs and constraints of a large number of users (i.e. researchers, adaptation practitioners, policymakers)
- It should be informative rather than prescriptive
- Different users have different adaptation objectives and require different assessment guidance

# Guidance Elements

- Framing the question
  - Decision tree to guide the approach and choice of methods, based on stated purpose of the assessment
- Approaches, methods and tools for VIA assessment
- Informing the adaptation process
  - Examples of good practice to help users follow the guidance and turn knowledge into action

# Planned Deliverables

- Technical Guidance for Assessing Climate Change Vulnerability, Impacts and Adaptation
  - Web-based and e-book version of 100–150 pages, with links to examples and case studies
  - Printed summary
- Outreach and dissemination plan, with information on targeted users and venues
- Plan for further development and application of the guidance

***Would you like to be a reviewer?***

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## Next Steps

- PROVIA Draft Priority Research Agenda and Draft Guidelines will be presented at Adaptation Futures Conference, May 29-31, 2012, Tucson, Arizona, co-sponsored by PROVIA.



**Climate Adaptation Futures:  
Second International Climate Change Adaptation Conference 2012**  
May 29–May 31, 2012  
University of Arizona, Tucson, Arizona, USA

<http://www.adaptation.arizona.edu/adaptation2012>